REMARKS

Claims 1-23 remain in the application and have been amended hereby.

As will be noted from the Declaration, Applicants are citizens and residents of Japan and this application originated there.

Accordingly, the amendments made to the specification are provided to place the application in idiomatic English, and the claims are amended to place them in better condition for examination.

An early and favorable examination on the merits is earnestly solicited.

Respectfully submitted,
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE ABSTRACT OF THE DISCLOSURE

Please amend the Abstract by rewriting same to read as follows.

[M (M is in the plural)] A number (M) of sound source signals T1, T2, T3, T4, each having at least one information element of position information, movement information and localization information, are synthesized to N sound source signals SL, SR based on [this] the information element where N is smaller than the number (M) of the sound source signals and the N synthesized sound source signals SL, SR having this synthesized information are localized in a virtual sound image. An amount of data to be processed can be reduced while virtual reality can be realized by [sounds] the synthesized sound source signals.

IN THE CLAIMS

Please amend claims 1-23 by rewriting same to read as follows.

--1. (Amended) A method of processing an audio signal comprising the steps of:

synthesizing a plurality of (M) sound source signals to provide N sound source signals, said number N being smaller than said number M of said sound source signals, based on at least one of position information, movement information and localization information of said M sound [sources] source signals;

synthesizing at least one information of position information, movement information and localization information [which are] corresponding to said N synthesized sound source signals; and

localizing said N synthesized sound source signals in sound image based on said synthesized at least one information.

--2. (Amended) [A] The method of processing an audio signal

according to claim 1, wherein said [sound image localization] step of localizing is a virtual sound image localization for obtaining two-channel reproduced signals [which are] supplied to a pair of acoustic transducers to localize a sound image at an arbitrary position around a listener.

--3. (Amended) [A] The method of processing an audio signal according to claim 1, wherein said [information corresponding to] at least one [sound source signal] position information, movement information and localization information of said M sound source signals and/or said synthesized at least one information of position information, movement information and localization information corresponding to [at least one synthesized sound source signal of] said N synthesized sound source signals is changed by a change instruction.

--4. (Amended) [A] The method of processing an audio signal according to claim 3, wherein said change instruction is supplied by [users'] a user's operation.

--5. (Amended) [A] The method of processing an audio signal according to claim 3, wherein said change instruction is obtained by detecting a movement of a listener's head.

--6. (Amended) [A] The method of processing an audio signal according to claim 1, further comprising the step of supplying random fluctuations to [said information corresponding to] at least one sound signal of said M sound source signals and/or said synthesized information corresponding to at least one [synthesized signal] of said N synthesized sound source signals.

--7. (Amended) [A] The method of processing an audio signal according to claim 1, wherein said number (N) of said synthesized sound source signals is [2] two or greater, at least one of said synthesized [information corresponding to said synthesized] sound source signals is based on localization information [and other synthesized information are localization information relative to said localization information].

--8. (Amended) [A] The method of processing an audio signal according to claim 1, further comprising the steps of changing a video signal in response to changes of reproducing localization positions of said M sound source signals or said N synthesized sound source signals and outputting said video signals.

--9. (Amended) [A] The method of processing an audio signal comprising the steps of:

synthesizing N sound source signals from a plurality of (M) sound source signals, where N is smaller than M;

localizing said [N] synthesized N sound source signals in virtual sound image based on a plurality of [previously-determined] previously determined localization positions;

storing a plurality of [reproducing] audio signals, localized in virtual sound image[,] in memory means; and

reading and reproducing said [reproducing] audio [signal] signals from said memory means in response to [reproducing] said localization positions of said synthesized sound source signals.

--10. (Amended) [A] The method of processing an audio signal according to claim 9, wherein [a reproducing] one of the localization [position] positions of said synthesized N sound source [signal] signals is changed by a change instruction.

--11. (Amended) [A] The method of processing an audio signal according to claim 10, wherein said change instruction is supplied by [users'] a user's operation.

--12. (Amended) [A] The method of processing an audio signal according to claim 10, wherein said change instruction is obtained by detecting a movement of a listener's head.

--13. (Amended) [A] The method of processing an audio signal according to claim 9, further comprising the step of supplying random fluctuations to said [reproducing] localization [position] positions of said [reproduced] audio [signal] signals read out from said memory means.

--14. (Amended) [A] The method of processing an audio signal according to claim 9, wherein said number (N) of said synthesized sound source signals is [2] two or larger, at least one of said synthesized [information corresponding to said synthesized] sound source signals is based on localization information [and other synthesized information are localization information relative to said localization information].

--15. (Amended) An apparatus for processing an audio signal comprising:

means for synthesizing a plurality of (M) sound source signals to provide N sound source signals, said number N being smaller than said number M of said sound source signals, based on at least one of position information, movement information and localization information of said M sound [sources] source signals;

means for generating synthesized information by synthesizing information corresponding to said synthesized N sound source

signals from said information of said M sound [sources] source signals; and

signal processing means for localizing in sound image said [N] synthesized N sound source signals [in sound image] based on said synthesized information from said means for generating.

--16. (Amended) [An] The apparatus for processing an audio signal according to claim 15, wherein said localizing in sound image [localization] in said signal processing means is a virtual sound image localization for obtaining two-channel reproduced signals [which are] supplied to a pair of acoustic transducers to localize a sound image at an arbitrary position around a listener.

--17. (Amended) An apparatus for processing an audio signal comprising:

means for generating synthesized sound source signals by synthesizing N sound source signals, from a plurality of (M) sound source signals where N is smaller than M;

signal processing means for providing a plurality of sets of reproduced audio signals by localizing said [N] synthesized N sound source signals in virtual sound image based on a plurality of sets of [previously-determined] previously determined localization positions;

[memorymeans] memory means for storing a plurality of sets of reproduced audio signals obtained by said signal processing means; and

reproducing means for reading and reproducing one of said plurality of sets of reproduced audio signal from said memory means in response to a reproducing localization position of said synthesized sound source [signal] signals.

--18. (Amended) [An] The apparatus for processing an audio signal according to claim 17, wherein said [sound image localization] localizing in said signal processing means is a virtual sound image localization for obtaining two-channel reproduced signals [which are] supplied to a pair of acoustic transducers to localize a sound image at an arbitrary position around a listener.

--19. (Amended) An apparatus for processing an audio signal comprising a signal [processing means] processor supplied with synthesized sound source signals [which results] resulting from synthesizing a plurality of (M) sound source signals to provide N signals, where N is smaller than M of said sound source signals, based on at least one information of position information, movement information and localization information of said M sound sources and synthesized information synthesized to said synthesized sound source signal [as] of at least one information of corresponding position information, movement information and localization information and [which localizes] for localizing said synthesized sound source signal in sound image based on said synthesized information.

--20. (Amended) [An] The apparatus for processing an audio signal according to claim 19, wherein said sound image localization in said signal [processing means] processor is a virtual sound image localization for obtaining two-channel reproduced signals [which are] supplied to a pair of acoustic transducers to localize a sound image at an arbitrary position around a listener.

--21. (Amended An apparatus for processing an audio signal

comprising:

means supplied with a plurality of sets of reproduced audio signals [which result] resulting from localizing virtual sound images of synthesized sound source signals synthesized to N signals from a plurality of (M) sound source signals, the number N being smaller than the number M of said sound source signals, based on a plurality of sets of [previously-determined] previously determined localization positions; and

means for selecting and reproducing one set of reproduced audio signals from said plurality of sets of reproduced audio signals in response to reproduced localization positions of said synthesized N sound source signals.

--22. (Amended) A recording medium in which there are recorded synthesized sound source signals in which a plurality of (M) sound source signals are synthesized to N signals [whose number], where N is smaller than the number (M) of said sound source signals, based on at least one information of position information, movement information and localization information of said sound source and synthesized information synthesized as at least one information of position information, movement information and localization information corresponding to said synthesized sound source signals in association with each other.

--23. (Amended) [A] The recording medium according to claim 22, wherein said synthesized sound source signals are two-channel reproduced signals [which are] supplied to a pair of acoustic transducers and thereby sound images are localized at reproduced localization positions around a listener.